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ABSTRACT

In determining the scope of online delivery of programs currently being developed within the Faculty of Education at the University of Melbourne (Australia), a number of factors have been involved. Until recently, the traditional research focus at the University of Melbourne translated into little or scattered interest in developing programs for delivery by distance mode. In 1995, a professional development program for teachers designed to provide participants with an overview of current and emerging computer technologies was developed and was geared toward combating technophobia in teachers. It combined hands-on experience with assembling/disassembling hardware and a broad range of software applications from word processing to Web browsers. The University launched the Technology in Schools Program in 1996. It is partly concerned with providing the appropriate network support, provision of other information services, and access to University facilities. Some of the key factors which have facilitated the implementation of online delivery of teaching programs at the University are: the existence of a significant number of local enthusiasts; well-developed infrastructure; support from senior academics and policy makers; strategic planning; promotion of a "collegiate culture" by the new Vice Chancellor; and federal and state government initiatives. (AEF)

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Determining the scope of online delivery at a traditional research-based university

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In determining the scope of online delivery of programs currently being developed within the Faculty of Education at The University of Melbourne a number of factors have been involved. Initially, for teachers wishing to participate in professional development programs this was seen as a simple matter of combining targeted web-based resources with electronic discussion lists. However, the picture became somewhat more complex when the Faculty decided to embark on developing online delivery of its existing teaching programs. The discussion is first contextualised by an historical description of the development of information technology (IT) at the university. It further endeavours to make explicit that the short 'half-life' of technology itself is a key determinant of the implementation pathways chosen.

It has been a concern for a number of years now that the integration of IT into the school curriculum be led by sound pedagogical principles and not by the technology itself. But this is much easier to talk about than implement in this age of technology-driven cultural change. The 'half-life' of technology, particularly IT, demands that we consider accessing a vast range of telecommunications, computing, and entertainment products and services and participate in the wider 'global community', or be left behind. For many academics in higher education, despite the ready accessibility of resources, this can be a threatening (and frustrating) experience; for many teachers of K-12 where the resources just sometimes do not exist, it can be overwhelming.

In an attempt to alleviate this situation, involving teachers as the main target group of a Faculty of Education professional development programme, an added pressure complicates the picture: politics. The policies of governments and the promises of political parties at election time create expectations which can hide the enormity of the tasks required. Such policies and promises are not necessarily negative, and in the current Australian situation can be seen as a positive force for educational reform—because the rhetoric surrounding initiatives such as EdNA (Education Network Australia) capture to some degree the urgency for educators to seize new technological tools or be enslaved by them. In the case of The University of Melbourne's strategic adoption of IT, within the context of a strong tradition of scholarship and research, it would not be unfair to say that the initial forces of change were largely driven by the technology.

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Some history

Until recently, the traditional research focus at the University of Melbourne translated into little or scattered interest in developing programs for delivery by distance mode—this has been left to the newer universities such as Deakin (in Victoria) and Southern Cross (in New South Wales). However, in 1989 the University began implementing a far-reaching Information Technology Strategic Plan which has resulted in all academic and most general staff members now having a personal desktop computer (either Macintosh or PC-compatible) in their offices, numerous new laboratory facilities for student access at a ratio of one computer per 10 students, university-wide and faculty-based

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multimedia research and development facilities, a comprehensive fibre-optic network infrastructure, and a Campus Wide Information System (CWIS) which has been in place for nearly two years.

When the Australian Vice-Chancellors launched AARNet (the Australian Academic & Research Network) in 1989, The University of Melbourne was charged with managing the international gateway for AARNet. This was Australia's connection to the world-wide Internet. In 1995, due partly to the impending de-regulation of telecommunications in Australia the management of AARNet was taken over by Telstra Internet thereby guaranteeing a greater level of reliability and facilitating commercial opportunities. Telstra Internet will provide bandwidth of 32 Megabits per second (Mbps) to the USA by the end of the year.

By early May 1996 the Victorian Regional Network (VRN) was operational, again with The University of Melbourne as its main hub, providing high speed links between all Victorian universities. There is a high speed connection between the VRN and Telstra Internet.

Concurrent to these developments a number of key Government initiatives have been implemented, the most significant being EdNA which is concerned with facilitating online connections between all Australian educational institutions—schools, universities, TAFE's, and affiliated organisations. Alongside these technological and political developments an academic watershed has also recently emerged: first with the enthusiastic and widespread research and development of multimedia (and 'flexible delivery') in teaching and learning across the university and, more recently, where there is now serious academic attention being focused on the scope of online education relevant to the specialisations of the University.

It is very clear that there is now an incredibly fertile ground at the University from which to cultivate new programs concerned with online delivery. Recognition of this is echoed in a feature article of the Autumn 1996 edition of The University of Melbourne Gazette titled, '*The Virtual University?*', by Professor Alan Gilbert, the new Vice-Chancellor. In it, he says:

> Of course existing universities must assimilate the new communications technologies, and with the utmost effectiveness seek to use the enormous benefits that the 'digital revolution' promises for the advancement of teaching, learning, research and communications generally. This must be an uncompromising, high priority commitment. Otherwise the traditional university will indeed be threatened with redundancy. (Gilbert, 1996: p.5)

These comments are of course qualified. Even though "traditional lectures and classrooms may disappear", he emphasises that it is unlikely that 'cyberspace' will replace the existing rich intellectual, social & cultural life that traditional universities offer—and is better understood as an *extension* of the teaching and learning environment.

Case-study

In 1995 a professional development program for teachers titled, *Computer Literacy for the 90s*, was developed within the Faculty of Education. It was designed to provide participants with an overview of current and emerging computer technologies and was geared toward combating technophobia in teachers (one of the symptoms of technology's short half-life). It combined hands-on experience with assembling/disassembling hardware and a broad range of software applications from wordprocessing to web browsers. It was also designed in recognition of significant developments in what can be understood as the requirements of 'basic computer literacy'—the convergence of technologies underlying computing, telecommunications and television broadcasting being the forces of change behind this. The first year of this program proved very successful and it has continued during 1996. As expected, it undergoes constant development. The attempt to integrate online interaction into this course was initially viewed by the team of trainers involved as requiring a listserver solution. An electronic discussion list that dealt with issues raised during the course was considered to be an follow-up but a number of obstacles emerged in putting this into place: probably the most significant of these being that literally only a handful of participants had access to email! Because of such basic realities, the online components of this course occur in the traditional face-to-face classroom.

In early 1996, partly in response to the success of this program but also due to the pressures of initiatives such as EdNA, the University launched the Technology in Schools Program (http://www.unimelb.edu.au/tisp/). It is partly concerned with providing the appropriate network support, provision of other information services, and access to University facilities. With the well-developed CWIS and IT resources at the University a clear path could be identified for this kind of extension service. Initially, it seemed that the best way to proceed was to tailor access to information resources, such as local multimedia database indexes, directly to the needs of schools (teachers and students) through electronic publication on the World Wide Web. Despite the extensive nature of these resources it must also be acknowledged that for many schools IT facilities are minimal: often there is only one computer with an Internet connection and the connection itself is not capable of much beyond basic text processing. Furthermore, because the nature of activity on the Web (as it exists today) does not necessarily *involve* users in communication or interaction but is simply used as a vast electronic library of interlinked directories, it was decided that complementing these resources with a number of listservers dedicated to certain subject areas would be a good strategy. While listserver technology is nothing new it is a proven method of providing up-to-date information to a network of subscribers as well as providing the mechanism of the virtual forum for ongoing discussion. At this stage, four such lists have been established: Unimelb-TISP (for general news dissemination and discussion); Unimelb-TT (a technical tips digest); Unimelb-Horizons (catering for needs of gifted secondary students); and, Unimelb-Navigator (discussion forum for Project Officers and Principals of Navigator Schools).

Discussion

This leads us to another critical factor in determining the scope of online delivery to be implemented at this University. The new technologies provide new opportunities for teaching and learning in ways that have yet to be rigorously (or at least, extensively) explored and researched. It is likely that new pedagogical paradigms will emerge. We've all been exposed to the hype of this associated with the arrival of multimedia onto the education and entertainment markets. Back in 1991, John Sculley, then CEO of Apple Computer, Inc. was claiming that:

> What tomorrow's student will need is not just mastery of subject matter, but mastery of *learning* (Sculley, J. quoted in Kling and Dunlop, 1991: p. 57)

His successor, Michael Spindler, developed the theme:

> by the end of this decade, approximately 90 to 95 per cent of all existing *knowledge* could be digitised, compressed, packaged, shipped to some place, decompressed and examined. Vast amounts of information could be made available in more compelling form to more people around the world. (The Australian, 1/6/93 p.16)

Providing academic leadership and support to this type of commentary, Hermann Maurer has said of hypermedia:

> ... the advent of computer supported multi-media systems provides not just an acute alternative to present information but an enrichment of our sensory and communicative possibilities that will impact society in a major way. ... the merging of large wide-spread hypertext systems with computer supported multi-media technology into powerful hypermedia systems will indeed provide a new kind of infrastructure for working, communicating, and thinking whose influence on how mankind will live, work, teach, and learn could be quite dazzling. (Maurer, 1992: p. 1)

More recently, Linda Harasim et. al. (1995), have commented:

> Profound changes at all levels of society and technology demand new educational responses. The paradigm for education in the twenty-first century that is emerging is network learning. Based on global interactivity, collaborative learning, and lifelong access to educational activities and resources, it provides an approach that

> emphasises international connectivities and engenders new ways of working, studying, and problem solving. (Harasim, Hiltz, Teles, & Turoff, 1995: p. 278)

Echoing this, Timothy Luke (1996) recently commented on 'cyberschooling':

> deciding to construct cyberschooling systems will necessitate major changes in our professional practices as educators as well as in the political economies of each university as a public enterprise...the virtualization of instruction shifts us into entirely new registers of action. Much of what we do is rooted to tacit understandings grounded in print culture, industrial training, hierarchic structure, and guild values which run at cross purposes with netcentric modes of operation. Consequently, many existing professional practices may not stand up in this new teaching/learning environment. (Luke, 1996: pp. 17-18)

Luke raises many important questions for anyone considering utilising cyberspace as a teaching and learning environment. His most recent conclusion, borne from experience in implementing a cyberschool at Virginia Polytechnic and State University over the past few years, is:

> the key educational issue for cyberschooling arguably will be how it actually valorizes instruction on such virtual campuses. Will it lower or raise the value of the education being provided? (Luke, 1996: p. 23)

> if cyberschools are to be built, then they should be designed by their users as an open-ended experiment to change (but not increase) faculty workloads, enhance (but not decrease) student interactions, equalize (but not shortchange) the resources, prestige, and value of all disciplines, balance (and not overemphasize) the transmittal of certain skills, concentrate (and not scatter) the investment of institutional resources, and strengthen (and not reduce) the value of all academic services. (Luke, 1996: p. 26)

Clearly, there are many issues to be discussed and discussions are only just beginning. It is critical that serious academic research and debate continues to gather momentum and tempers the mainstream media journalism which either "demonises" or "glorifies" the technology. (McWilliam & Palmer, 1995: p. 33)

Conclusions

At this early stage of investigation there are a number of key factors which can be seen as facilitating the implementation of online delivery of teaching programs at The University of Melbourne. These are:

- the existence of a significant number of local 'champions' or enthusiasts
- the well-developed IT infrastructure at the University;
- support from senior academics and policy makers, which translates into providing adequate resourcing. It is now well-recognised at the University that investment into 'the technology' must be matched by adequate and appropriate human resourcing for any ongoing 'critical mass' momentum;
- the adoption of a strategic approach in planning (setting achievable goals and targets; prototyping, so that 'courseware' is structurally optimised for online delivery). Initially, this has been assisted by concentrating efforts on professional development short-courses;
- the promotion of a 'collegiate culture' by the new Vice-Chancellor—because a team approach (between content builders, technical specialists, and administrators of new programs) is required for the range of tasks necessary; and,
- Federal and State government initiatives (such as EdNA and *Schools of the Future*), which have contributed to promoting wide discourse on this and related subjects.

Further (online) resources for investigation

EdNA — Education Network Australia

http://www.edna.edu.au/

Online-Ed — A weekly digest of information relevant to online education, The University of Melbourne

http://www.edfac.unimelb.edu.au/online-ed/

Realigning Your Organization to Learning in the Information Age -The University of Edinburgh, Scotland, July 27-30th, 1996

http://sunsite.unc.edu/horizon/conferences/Edinburgh.html

Teleteaching 96, IFIP — Canberra, September 2-6th, 1996

http://www.acs.org.au/teleCFP.html

Universities of the 21st Century: Education in a borderless world — Singapore, August 13-14th, 1996

http://www.britcoun.org/eissem1.html

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